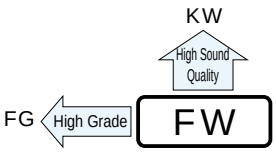
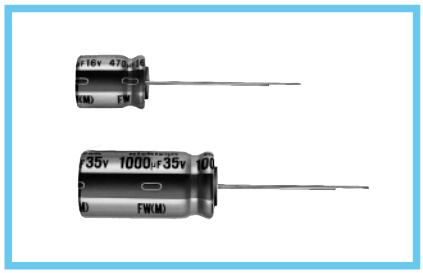
ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

FW series

Standard, For Audio Equipment



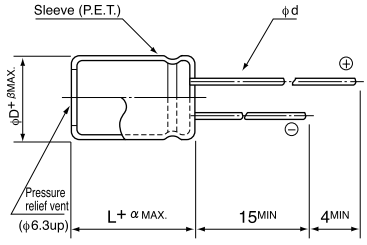


● Adapted to the RoHS directive (2002/95/EC).

■Specifications

Item	Performance Characteristics
Category Temperature Range	–40 ~ +85°C
Rated Voltage Range	6.3 ~ 100V
Rated Capacitance Range	0.1 ~ 33000μF
Capacitance Tolerance	±20% at 120Hz, 20°C
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03 CV or 4 (μA) , whichever is greater. After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μA) , whichever is greater.
tan δ	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 100 tan δ (MAX.): 0.28 / 0.24 / 0.20 / 0.16 / 0.14 / 0.12 / 0.10 / 0.08 Measurement frequency : 120Hz, Temperature : 20°C For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.
Stability at Low Temperature	Measurement frequency : 120Hz Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 100 Impedance ratio ZT / Z20 (MAX.) Z–25°C / Z+20°C: 5 / 4 / 3 / 2 / 2 / 2 / 2 / 2 Impedance ratio ZT / Z20 (MAX.) Z–40°C / Z+20°C: 12 / 10 / 8 / 5 / 4 / 3 / 3 / 3
Endurance	After 2000 hours' application of voltage at 85°C, capacitors meet the characteristic requirements listed at right. Capacitance change: Within ±20% of initial value tan δ: 200% or less of initial specified value Leakage current: Initial specified value or less
Shelf Life	After sroring the capacitors under no load at 85°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above.
Marking	Printed with black color letter on Gold sleeve.

■Radial Lead Type

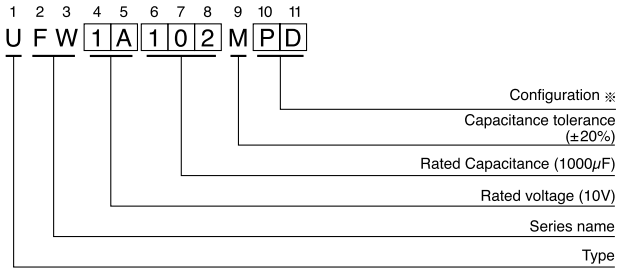


(mm)

φD	5	6.3	8	10	12.5	16	18	20	22	25
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10	10	12.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0	1.0
β	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0

α	
	(φD < 20) 1.5
	(φD ≧ 20) 2.0

Type numbering system (Example : 10V 1000μF)


1 2 3 4 5 6 7 8 9 10 11
U F W 1 A 1 0 2 M P D
Configuration ※
Capacitance tolerance (±20%)
Rated Capacitance (1000μF)
Rated voltage (10V)
Series name
Type

※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
5	DD
6.3	ED
8 ·10	PD
12.5 ~ 18	HD
20 ~ 25	RD

• Please refer to page 21 about the end seal configulation.

Please refer to page 21, 22, 23 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

● Dimension table in next page.

FW series

■Dimensions

Cap.(μF) \ V	6.3		10		16		25		35		50		63		100	
Code	0J		1A		1C		1E		1V		1H		1J		2A	
0.1	0R1										5×11	1.1			5×11	2.1
0.22	R22										5×11	2.4			5×11	4.7
0.33	R33										5×11	3.5			5×11	7.0
0.47	R47										5×11	5.0			5×11	10
1	010										5×11	10			5×11	21
2.2	2R2										5×11	23			5×11	30
3.3	3R3										5×11	35			5×11	40
4.7	4R7										5×11	40			5×11	45
10	100										5×11	65	5×11	70	6.3×11	75
22	220										5×11	95	5×11	100	6.3×11	120
33	330								5×11	105	5×11	120	6.3×11	140	8×11.5	160
47	470						5×11	115	5×11	120	6.3×11	150	6.3×11	165	10×12.5	210
100	101			5×11	145	5×11	155	6.3×11	185	6.3×11	200	8×11.5	250	10×12.5	300	10×20	350
220	221			6.3×11	230	6.3×11	250	8×11.5	320	10×12.5	370	10×12.5	410	10×16	470	12.5×25	600
330	331	6.3×11	265	6.3×11	270	8×11.5	360	10×12.5	420	10×12.5	470	10×16	570	10×20	650	12.5×25	750
470	471	6.3×11	310	6.3×11	330	8×11.5	420	10×12.5	530	10×16	630	12.5×20	760	12.5×20	880	16×25	1000
1000	102	8×11.5	530	10×12.5	630	10×16	770	10×20	950	12.5×20	1100	12.5×25	1300	16×25	1300	18×40	1370
2200	222	10×20	980	10×20	1050	12.5×20	1250	12.5×25	1550	16×25	1800	16×35.5	2090	18×35.5	2200	22×50	2400
3300	332	10×20	1170	12.5×20	1420	12.5×25	1700	16×25	1950	16×35.5	2220	18×35.5	2360	20×40	2700	25×50	2900
4700	472	12.5×20	1350	12.5×25	1800	16×25	2100	16×31.5	2360	18×35.5	2490	20×40	2900	22×50	3400		
6800	682	12.5×25	1600	16×25	2150	16×35.5	2500	18×35.5	2590	20×40	3000	22×50	3500	25×50	3500		
10000	103	16×25	2000	16×35.5	2500	18×35.5	2640	20×40	3000	22×50	3700	25×50	4000				
15000	153	16×35.5	2550	18×35.5	2720	20×40	3400	22×50	3800	25×50	4300						
22000	223	18×40	3200	20×40	3700	22×50	4200	25×50	4500								
33000	333	22×50	3900	22×50	4500	25×50	4800									Case size φD×L (mm)	Rated ripple

Rated Ripple (mArms) at 85°C 120Hz

●Frequency coefficient of rated ripple current

Cap.(μF) \ Frequency	50Hz	120Hz	300Hz	1kHz	10kHz ~
~ 47	0.75	1.00	1.35	1.57	2.00
100 ~ 470	0.80	1.00	1.23	1.34	1.50
1000 ~ 33000	0.85	1.00	1.10	1.13	1.15